

The World Meteorological Organization Global Atmospheric Watch (WMO/GAW) Volatile Organic Compound (VOC) Network

D. Helmig¹, L. Barrie², J. Bottenheim³, C. Brenninkmeijer⁴, D. Oram⁵, C. Plass-Duelmer⁶, A. Lewis⁷, S. Nickovic⁸, S. Penkett⁹, J. Pollmann¹, B. Rappenglueck¹⁰, S. Reimann¹¹, R. Steinbrecher¹², P. Tans¹³

¹Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO 80309-0450; 303-499-3174, Fax: 303-499-6388, E-mail: detlev.helmig@colorado.edu

²Environment Division, AREP, WMO, 7bis, Avenue de la Paiz, 1211 Geneva 2, Switzerland

³Science and Technology Branch, Environment Canada, Toronto M3H 5T4, Canada

⁴Max Planck Institute for Chemistry, 55128 Mainz, Germany

⁵University of East Anglia, Norwich, NR4 7TJ, United Kingdom

⁶Deutscher Wetterdienst Meteorological Observatory, 82383 Hohenpeissenberg, Germany

⁷Department of Chemistry, University of York, Heslington, York YO10 5DD, United Kingdom

⁸Atmospheric Research and Environment Programme, WMO, Geneva 2, Switzerland

⁹School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, United Kingdom

¹⁰Department of Geosciences, University of Houston, Houston, TX 77204-5007

¹¹EMPA, Swiss Federal Laboratories for Materials Testing and Research, 8600 Duebendorf, Switzerland

¹²Institute of Meteorology and Climate Research, 82467 Garmisch-Partenkirchen, Germany

¹³NOAA-GMD, 325 Broadway, Boulder, CO 80305-3328

Next steps in the implementation of a global VOC measurement program were developed at the VOC WMO/Workshop on Volatile Organic Compounds (VOCs) in Geneva, Switzerland, Jan. 30–Feb. 1, 2006. The VOC network will rely on 1. A series of monitoring stations that will provide continuous, in-situ gas chromatography (GC) measurements, and 2. Existing regional and global flask sampling programs. INSTAAR's ongoing Non-Methane Hydrocarbon (NMHC) monitoring in flasks from the NOAA greenhouse gas sampling network was identified as a potential centerpiece of this network. Other important components of the WMO/GAW VOC program include the establishment of a calibration standard scale and coordinated calibration and intercomparison efforts between the continuous GC stations and participating flask network laboratories and a GAW-VOC data center.

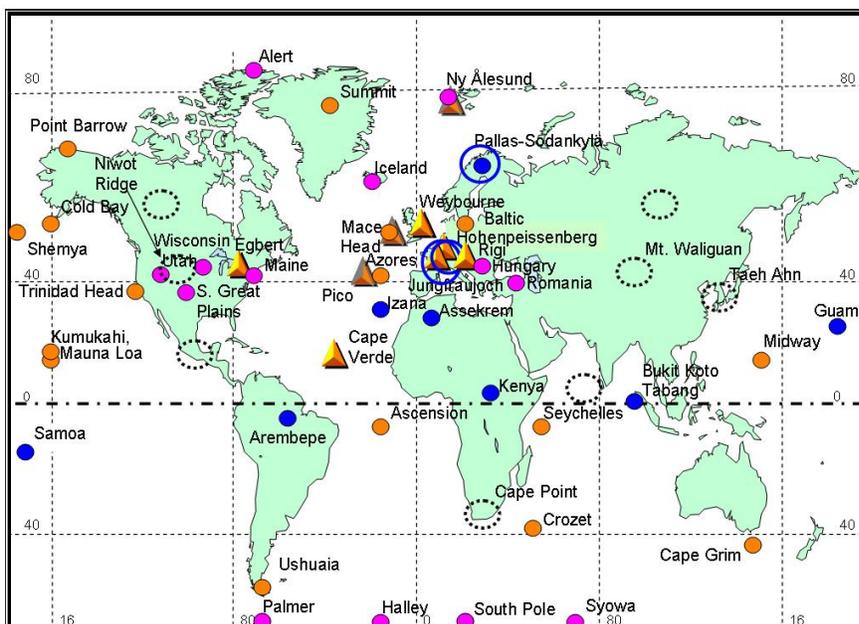


Figure 1. Proposed WMO VOC network with currently operating (▲) stations (Hohenpeissenberg, Rigi, Egbert), intermittent programs (▲), Pico, Mace Head) and continuous GC stations under development (▲), Weybourne, Cape Verde). Sites that are currently monitored in the NOAA/INSTAAR NMHC flask program are marked with colored dots (orange: start in April 2005, pink: November 2005, blue: spring 2006). Circled (dashed) areas are WMO desired locations that are not yet included. Blue circles mark overlap between NOAA, the EMEP flask network and continuous GC stations.